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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/594,324	06/15/2000	Toshio Matsuura		8859

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12/09/2003

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EXAMINER

CINTINS, IVARS C

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/594,324

Applicant(s)

MATSUMURA ET AL.

Examiner

Ivars C. Cintins

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 14-31 is/are pending in the application.
- 4a) Of the above claim(s) 25-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 21, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent No. 5,882,517) in view of VanderBilt et al. (U.S. Patent No. 4,753,728). Chen et al. discloses a porous structure (filter) for separating unwanted constituents from a fluid (see col. 1, lines 4-9), which structure comprises activated carbon (col. 9, lines 48-49; and col. 16, line 31) in combination with a polymeric binder of the type recited (col. 6, lines 21-23; and col. 18, line 3). Accordingly, this reference discloses the claimed invention with the exception of the recited inlet and outlet for the filter, the exact melt index of the binder, and the exact density of this porous structure. However, since the porous structure of the reference is intended to be used as a filtration material, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide this reference material with a housing having an inlet and an outlet, in order to facilitate contact between this filtration material and the fluid undergoing treatment. Also, VanderBilt et al. discloses that carbon block filters formed with very low melt index polymer binders (see col. 3, lines 30-37) will permit high flow rates, such as .8 and 1.0 gallons per minute (3.6 and 4.5 L/min, respectively). See TABLE II, examples 21 and 22. Since Chen et al. clearly discloses a melt index range which encompasses all of Applicant's recited values (col. 6, lines 19-23), it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ polymer binders with a melt index at the lower end of this disclosed range (i.e. between 1.1 and 2.3 g/10 min) to form the reference filter, if one

wanted to maximize the flow rate through this filter. Furthermore, it would have been obvious of one of ordinary skill in the fluid purification art to employ a filter having the recited density in the system of the modified primary reference, since such a density would correspond to a porous structure called for by this modified primary reference. Moreover, it would have been obvious to this skilled artisan to employ carbon particles passing through a mesh of 100, since Chen et al. clearly teaches (see col. 5, line 8) that the carbon particles can be between 10 and 400 microns in size, which disclosed range includes 100 mesh (i.e. 149 microns). Applicant should note that since claim 1 recites "first" particulate active carbon which can be of a size which passes through a mesh of 100 (i.e. 60-100) and "second" particulate active carbon of a size which passes through a mesh of 100 (see claim 1, lines 10-12), this claim does not appear to require particles having different particle sizes.

Should it be held that the recitation in lines 10-12 of claim 1 requires a mixture of diverse activated carbon particles, then claims 1, 5, 21, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. and VanderBilt et al. as applied above, further in view of Shmidt et al. (U.S. Patent No. 5,904,854). Shmidt et al. discloses an adsorbent material comprising activated carbon having different particle sizes; and further teaches (see col. 1, line 66 through col. 2, line 1) that such a composite material has low flow resistance and improved adsorption properties. Since these characteristics would obviously be desirable in the filter of the modified primary reference, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the activated carbon mixture of Shmidt et al. in the filter of the modified primary reference, in order to obtain the advantages disclosed by Shmidt et al. for the device of this modified primary reference.

Claims 1, 3-11 and 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Unexamined Patent Application Publication No. 10-85729 in view of Chen et al., further in view of VanderBilt et al. The primary reference discloses a filter cartridge comprising a chamber filled with activated carbon, and a hollow yarn membrane chamber. Accordingly, this primary reference discloses the claimed invention with the exception of the recited polymeric binder. Chen et al., as modified by VanderBilt et al. above, discloses a porous filter element of the type recited; and it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the filter element of the secondary references for the activated carbon of the primary reference, in order to obtain the advantages disclosed by these secondary reference for the system of the primary reference. As explained above, the recitation in lines 10-12 of claim 1 does not preclude the use of a single carbon particulate material having a mesh size of 100.

Again, should it be held that the recitation in lines 10-12 of claim 1 requires a mixture of diverse activated carbon particles, then claims 1, 3-11 and 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Unexamined Patent Application Publication No. 10-85729 in view of Chen et al. and VanderBilt et al. as applied above, further in view of Shmidt et al. Shmidt et al. discloses an adsorbent material comprising activated carbon having different particle sizes; and further teaches (see col. 1, line 66 through col. 2, line 1) that such a composite material has low flow resistance and improved adsorption properties. Since these characteristics would obviously be desirable in the filter of the modified primary reference, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the activated carbon mixture of Shmidt et al. in the filter of the modified primary

reference, in order to obtain the advantages disclosed by Shmidt et al. for the device of this modified primary reference.

Claims 25-31 remain withdrawn from further consideration, as being directed to a non-elected invention. Applicant should note that although the response filed January 8, 2002 stated that the election of Group I is made with traverse, this response failed to distinctly and specifically point out the supposed errors in the restriction requirement; and therefore, the above noted election has been treated as an election without traverse (see M.P.E.P. § 818.03(a)).

Applicant's arguments filed August 8, 2003 have been noted and carefully considered but are not deemed to be persuasive of patentability. Applicant argues that by incorporating the limitations of claims 12 and 13 into claim 1, the unexpected results described in the Urabe declaration filed April 8, 2003 correspond with the claimed structure. It is pointed out, however, that this declaration is not deemed to be persuasive of patentability because: (1) the test results presented in "Amendment A" (referred to in paragraph 17 of the declaration) are not deemed to be unexpected since VanderBilt et al. clearly teaches that carbon block filters formed with very low melt index polymer binders will permit high flow rates; and (2) the claims in this application are not limited to the specific conditions (i.e. a 2 to 1 ratio mixture of particulate activated carbon passed through a mesh of 60-100 and particulate activated carbon passed through a mesh of 100; 15% by weight high molecular porous polymer with a melt index of 1.5 g/10 min; a final product with a density of 0.6 g/cm³; etc.) required to produce the results contained in this declaration.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I. Cintins whose telephone number is (703) 308-3840. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If

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attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr.

Blaine Copenheaver, can be reached at (703) 308-1261.

The centralized facsimile number for the USPTO is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Ivars C. Cintins
Ivars C. Cintins
Primary Examiner
Art Unit 1724

I. Cintins
November 29, 2003